Ministry of Justice

Fleet Electrification
EV Charging Infrastructure

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30/09/2020
(Performance Specification)
MEP ENGINEERING

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Contents

1. Definition Terms

1.1 Supplier

The successful organisation or company providing the services under the contract for the provision of Electric Vehicle Charging Points and infrastructure.

1.2 Contracting Authority

The organisation ordering works or services, will be The Ministry of Justice.

Tenderers are to note and be aware of certain secure establishments including prisons.

2. Scope of works

2.1 General requirements

This Specification is for the design, procurement, installation, testing and commissioning activities associated with Electric Vehicle Charging Points (EVCPs) of any types and shall be read in conjunction with the Arcadis Fleet Electrification Solutions Document issued as part of the tender documentation

The EVCPs will be installed at a list of prioritised locations as indicated in the tender documents. All installation locations identified and advised by the Ministry of Justice at the time of the Tender will be subjected to the activities described here after. Each location is to be regarded as a different sub-Project within the overall EVCPs Project and shall be identified in accordance with the tender documentation and as agreed with the Contracting Authority Each location's sub-project consists of a site survey assessment, design, procurement, installation, testing, commissioning, certification & warranty of Electric Vehicle Charging Points and associated infrastructure as described and specified hereafter.

For the purposes of tendering the split between 'inside the wire & outside the wire' will be two thirds of the EVCP's will be inside the wire and one third will be outside the wire. Final allocations will be confirmed at the point of award tender.

In general, the Supplier is required to undertake the following activities as detailed in this Performance Specification:

- Consult with, make applications for and pay all fees necessary to gain DNO approvals, planning, leases & licenses, where and if required.
- Design, procure, install, connect, test, commission, set to work and demonstrate the EV Charging Point(s) including the specific communication systems.
- Provide all necessary builders work & civils in connection (BWIC) and making good the installation.
- Provide all necessary software for each site, in such a way that the system will be able to be monitored online by each Regional Estate Manager's Branch Office.
- Data collection as outlined in appendix 4 as a minimum.
- Provide responsible and qualified full project management for all phases of the activities on each location.
- Provide full operating and maintenance information and record drawings for the completed installation(s) for each location.
- Provide personnel training on site for each installation on each MoJ location to the MoJ nominated representatives.

- Provide detailed EVCP proposals for each site for approval by the Contracting Authority prior to proceeding.
- 12 months defects period.
- Provide a 3 year warranty.

The Supplier shall not deviate from these specification and tender documentation without prior written approval from the Contracting Authority.

Through the course of the contract, every effort is to be undertaken to minimise the impact the works will have on other users of the building and establishment – where disruption occurs every reasonable precaution shall be planned, and provisions made to minimise operations to the business operations from all aspects.

Strict security requirements apply to all aspects of the project information, as well as execution and full observance and adherence of these is essential at all stages of the project.

The contractor will be required to take into account all aspects identified in respect to the site, any restrictions, statutory requirements etc. which will materially affect the design and construction of the building and make due allowance for them in his contract sum. No claim will be entertained for lack of knowledge.

Should there be any item specified or shown which may be considered as not complying, the Supplier shall notify the Contracting Authority of this so that clarification can be obtained. Subsequent non-complying elements shall be replaced at no cost to the Contracting Authority.

Any apparent conflicts found between any documents, the specification and statutory requirements, as well as any doubt regarding the principles this Performance Specification are to be notified immediately in writing to the Contracting Authority by the Supplier.

Covid-19 Management plan: The contractor shall provide a project specific Covid 19 Construction Management plan outlining their procedures and processes in that respect and in compliance with government guidelines and regulations.

2.2 Design and Surveys

The supplier shall provide a detailed EVCP proposal, supported by relevant site surveys and technical investigations, as detailed in the tender documents for each of the sub projects, as mentioned therein. The proposal shall include a price and programme for the sub project.

The site surveys and technical investigations will consist of, but is not limited to, the following requirements for each location:

- Confirmation of available electrical supply capacity from each existing local Ministry of Justice (MoJ) Power System(s).
- Exceptionally and in the cases of insufficient power from the local MoJ Power Supplies, the Supplier shall contact and liaise with the local Distribution Network Operators, (DNOs) and an accredited company (ICPs) that can build electricity networks to agreed technical requirements of the DNO for the installation of dedicated power for the EV Charging Point(s). Provisional cost for the additional Power supplies shall be included within the tender proposal.

- Investigation on the potentially increased lightning voltage surge risks shall be carried out on each of the premises where the EVCP's shall be installed. The EVCP's installations and relevant Power Sources shall be adequately protected from voltage surges by appropriate Surge Protection Devices as evidenced by Risk Assessment reports.
- Compile data for all the installation areas to inform the need for asbestos surveys.
- Carry out underground surveys on all installation areas where trenching is required to identify existing services affected by the work.

The design services will consist of, but are not limited to, the following requirements for each location:

- Provide a plan layout of the proposed installation options for each site, including details of the materials, equipment, works for the infrastructure installation, including all connections, excavation, ductwork, reinstatement, signage, road marking and making good necessary for the end to end installation.
- Provide structural / civil engineering specialist services in relation to the foundation ground works, where and if required, for feeder pillars / charging points / bollards and what else necessary.
- Prepare and agree installation programmes for each site with the Contracting Authority.

2.3 Sustainability – Selection of Materials

The general plant, equipment and materials shall be sourced from sustainable suppliers and manufacturers, without compromising quality, service or maintainability of the final installation. All materials shall meet the relevant standards for each item as identified in the documentation and agreed with the Contracting Authority.

The Supplier shall ensure that all components can be easily accessed for maintenance activities and be able to be swapped out and replaced when and as necessary. All EVCP equipment shall be installed with the use of tamper proof fixings including ground/wall fixings.

2.4 Electrical Supply

All electrical works shall be carried out in strict accordance with the BS7671:2018 + A1:2020 - 18th Edition of the IET Wiring Regulations, all Standards, Regulations and Code of practices as cited in this specification and to the complete satisfaction of the Contracting Authority.

The EV Charging Points works shall be fully compliant with the IET Code of Practice for Electric Vehicle Charging Equipment Installations – 3rd Edition - ISBN 978-1-78561-680-8 & be OCPP 2.0 compliant.

The provision of the electrical supply to all charging points is the responsibility of the Supplier, as is the process of arrangement and agreement of all associated parties and respective permissions including either the connection to the local electrical infrastructure network or to the existing premises electrical system. Where a new electrical supply or reinforcement is required, the Supplier shall directly arrange this energy supply contract on behalf of the Contracting Authority. The Contracting Authority retains the control of which energy supplier they wish to use to provide their energy. The EVCP Supplier shall liaise with the Contracting Authority prior to agreement for new power supplies.

The cost of the power distribution and/or any electrical connection associated with each of the charging points must be included in the overall cost of the charging point installation costs. Where it is apparent in advance that the cost of the new Power Supply connection may be prohibitive, or the works require excessive efforts or disruption to existing operations, this should be reported to the Contracting Authority before any action is taken at that location.

2.5 Standards and Regulations

All EV charging equipment and general electrical equipment shall be provided and installed in accordance with relevant standards, Code of practice, Regulations and this Specification, and be able to operate under the Open Charge Point Protocol (OCPP – the ability to communicate with all electrical charging stations either by PC Console or via Mobile Phone App).

All materials specified shall be in accordance with the latest British/European Standard Codes of Practice, British/European Standard, and ISO standards (latest amendments at the date of Tender), Engineering & civils works specification. The whole of the works shall be executed in a professional manner. It shall comply with the best practices of the industry and conform in all respects with current requirements.

The Supplier shall provide certificates and letters stating that the materials and installations are in accordance with the authority having jurisdiction over them, the regulations applicable, and the applicable British and ISO standards as follows:

- Asbestos Regulations
- British Standards & Codes of Practice
- BSRIA: Building Services Legislation – a directory of UK & EU Regulations
- Building Regulations
- CDM Regulations
- Construction Health & Safety and Welfare Regulations
- Equalities Act 2010
- Environmental Protection Regulations
- Factories Acts
- Fire Officer Committee Regulations
- Health and Safety at Work Act
- Health & Safety Commission Approved Code of Practise and Guidance
- HSE publication HSG47 *Avoiding dangers from underground services*
- Ministry of Justice Standards, Regulations & Guidance
- Local Authority By-laws
- Provision and use of work equipment regulations
- Public Health Acts
- Chartered Institution of Building Services Engineers
- Statutory Instruments and any other relevant Acts of Parliament.
- IEC 60536 IEC 61140
- EN 610000 – EMC Compliance
- EN 60950 Safety Compliance to Low Voltage Directive
- IET Code of Practice for Electric Vehicle Charging Equipment Installations (3rd edition)
- The Electricity at Work Act 1994

- The Electricity Safety, Quality and Continuity Regulations 2002 and amendments
- BS EN ISO 9001 - Model for Quality Assurance in Design, Development, Production, Installation & Servicing
- BS EN 60947 - European Standard for Low Voltage Switchgear & Control Gear
- BS EN 61439 - European Standard for Low Voltage Switchgear & Control Gear Assemblies
- BS EN 61851-1:2011 - Electric vehicle conductive charging system. General requirements
- BS EN 61851 – 21:2002 Part 21: Electric vehicle requirements for conductive connection to an AC/DC supply
- BS EN 61851 – 22:2002 Part 22 : AC electric vehicle charging station.
- BS EN 61851 – 22:2002 Part 23 : DC electric vehicle charging station
- BS EN 62196-2 – Plugs, socket outlets and vehicle couplers – conductive charging of electric vehicles – Part 2: Dimensional compatibility and interchangeability requirements for AC. Pin and contact tube accessories
- BS EN 62196-3 – Plugs, socket outlets and vehicle couplers – conductive charging of electric vehicles – Part 3: Dimensional compatibility and interchangeability requirements for DC and AC/DC pin and tube type contact vehicle couplers
- ISO 15118 – 1/2/3 Road Vehicles – Vehicles to grid communication interface – Part 1: General information and use –case definition / Part 2: Network and applications protocol requirements / Part 3: Physical and data link layer requirements
- BS 6724 - Electric Cables 600/1000V
- BS 7671:2018 + A1:2020 - IEE Wiring Regulations 18th Edition
- Open Charge Point Protocol 2.0 + amendments (OCPP)
- CE – CE Marking
- BS 8300:2009+A1:2020 – Design of Buildings and their approaches to meet the need of the disabled. Code of practice
- DPA 1998 – Data Protection Act
- ECR 2006 – Electromagnetic Compatibility Regulations 2006
- EESR 1994 – Electrical Equipment Safety Regulations1994
- TSRGD 2016 – Traffic Signs Regulations and General Directions 2016
- WEEE Waste of Electrical and Electronic Equipment Directive 2012/19/EU
- Minimum Technical Specifications – Workplace Charging Scheme. (included at Appendix 4 of this document).

The Supplier and their supply chain shall always adopt working practices in accordance with the requirements of, but not limited to, the Health and Safety at Work Act 1974, CDM Regulations 2015, and the Electricity at Work Regulations 1989 whether they are applicable or not.

2.6 Site Survey Visits

The Supplier shall work collaboratively and in partnership with the Contracting Authority Project Team to ensure the successful delivery of the installation programme, including the following:

- Liaison and co-ordination with site users and the client's FM team and their suppliers to arrange and obtain site access for the surveys and works.
- Liaison and co-ordination with the client's Estates Management Provider in connection with obtaining landlords licences where necessary.
- Liaison, co-ordination and reporting information to track progress and costs against the delivery of the installation programme.

The Supplier shall visit the site(s) to familiarise themselves with local conditions, ground conditions, means of access, existing services etc. as no claims shall be entertained on the grounds of ignorance of such conditions.

All visits to Contracting Authority's premises shall consider the daily operational activity of that site and the Supplier is to be understanding and accommodating of any specific or general building' and user' requirements and sensitivities.

Any such visits shall be made by prior appointment with the Contracting Authority & site management staff. The Supplier shall make a formal appointment with the site through the Contracting Authority, attend promptly, familiarising and observing all local procedures such as Covid-19 measures, evacuation, signing in and out of site and Health and safety routines including Asbestos register. The site visit shall consist of non-intrusive inspections of all areas where works are proposed to take place.

If and where intrusive inspections may be required, the Supplier shall notify the Contracting Authority and jointly establish a follow-up Intrusive Survey in such a way as to minimise the establishments activities disruption, preserve the premises Security and sensitivities and ensure the H&S of all occupants and Surveyors. A Method Statement for the Intrusive Survey will be required by the Contracting Authority to ensure that proper Safety and Security Procedures will be adhered to.

2.7 Work within existing buildings & Sites.

The Supplier shall note that in some instances they shall be working within buildings which are used by the Contracting Authority's staff, the general public and, in some cases, vulnerable persons. The Supplier shall not impede or interfere with the day to day operations of the buildings or sites in any way and be considerate and accommodate the staff's building user requirements.

The Supplier's access, car parking, and compound requirements shall be agreed with the Contracting Authority before starting work.

The Supplier's personnel is required to have a Baseline Personnel Security Standard Clearance (BPSS) if working either inside or outside the MoJ establishment. No deviation will be accepted.

The sites' fire evacuation strategy shall be fully understood by the Supplier and considered within any visits or H&S documents and Permit to Works.

Under no circumstances shall any power be disconnected, or any isolation of services done, without prior written approval from the Contracting Authority and an adequate Work Permit issued. Any such disconnections shall be agreed in advance, with the Supplier giving a minimum of 7 days' notice. The Supplier shall allow for all shutdowns to be undertaken to suit the building or establishment use activity which may require to be outside the normal daily working hours or even at weekends. No additional costs for such events will be accepted.

2.8 Builders and Civils Work

The Supplier shall be responsible for undertaking all builders and civils work in connection with the EV charging point installation.

Holes through building structure for cabling shall be avoided where possible, however where this is impractical, prior to forming any holes, the Supplier shall consult with their appointed structural engineer then submit and agree with the Contracting Authority, the exact location of the penetration, including full weathering & fire stopping details. Holes through walls and/or floors shall be filled, sealed and weatherproofed, with fire barriers added or reinstated. Filling of holes shall be carried out in a neat manner to match the respective surround, e.g. damaged brickwork or cladding, as a consequence of the contract works, and the external facade shall be made good with matching brick or whatever material the existing structure comprises. Decorations shall generally be made good to match existing.

Trenching and ground works shall be carried out in accordance with standards referenced in this document. Temporary supports and barriers for excavations are to be provided as required under the Construction Design and Management latest Regulations

Cable and duct installation should generally follow Sections 9, 13, 14 and other relevant parts of MoJ STD/E/SPEC/018.

Hazards associated with EV charging point installation are outlined in the IET code of practice (COP) for Electric Vehicle Charging Equipment. The Supplier shall provide full supporting Health and Safety Information with risk assessments and method statements for each proposed installation.

The Supplier shall provide a designer's risk assessment and installation method statements prior to commencement of works on site. The above documentation shall be submitted to the Contracting Authority for comments prior to commencement of the works.
Where a permit to work scheme is in operation at a site, the permit shall be applied for in writing and received comment one week before commencement of the works.

2.9 Supplementary Information to be provided with EVCP proposal

The Supplier shall provide the following information with their priced submission.

- Details of any subcontract or proposed subcontract arrangements
- Name and experience (with CV) of Project Manager
- The proposed company and name of the person (with CV) undertaking the structural / civil inspection and associated calculations.
- Prior to commencement evidence of the personnel required Security Clearances as indicated elsewhere.

2.10 EVCP Hardware, Accessories and functionalities

Compliance with the European Commission and European Free Trade Association Mandate M/468 regarding the evolving interoperability including Open Charge Point Protocol and connection types of EVCP's is mandatory. The system will be made self-monitoring by the Supplier and communicating to the Suppliers data and / or the approved management service provider. This will communicate the condition of each charge point

and its availability for charging activity. The EVCP will be capable of being self-diagnosed, send appropriate error messages and codes, and be able to be remotely reset or configured by the Supplier, the approved management service provider and / or the Contracting Authority if so requested. The Supplier shall ensure that all data for all the elements of every individual charge transaction at each EVCP is communicated to the Supplier system management with an accuracy level that shall exceed 95%. These requirements apply to all charging points to be installed.

The supplier is to be responsible for the supply & installation of all necessary hardware and accessories needed for a fully operational charge point system.

Charge Points required: -

- Fast (22kW, three phase) dual port chargers

Installed in a prioritised programme as detailed elsewhere in the tender documents.

Final numbers of charge points are to be determined following the site survey assessments. Tenderer to offer feasible and practical proposals.

NOTE: Final numbers of charge points required subject to change should the Contracting Authority introduce further ULEVs into his fleet.

The equipment shall meet the following minimum requirements:

- Fast chargers with Type 2 sockets (single and dual options) to EN62196
- RCD protection (30 mA, Type A) DC Fault Current Detection (Electronic, IΔn DC ≥ 6 mA); plug-out detection and surge protection.
- Over-current protection of 2 x 40A MCBs curve
- Cabling to the EVCPs to be AC three phase sized to suit the single and / or dual point options, as the case will be.
- Minimum IP54 enclosure rating to EN 60529
- Each charger will be bonded to its own earthing system to conform with BS7671:2018+A1:2020 – Regulation 722. Supplier is to consider Voltage Surge Suppression where and if necessary.
- Durable high-strength construction and hardened electronics withstand climate extremes and physical abuse. Black (RAL9005) or White (RAL9010) as standard.
- Minimum operating temperature range (with display to remain fully operational) of -25℃ to +45℃.
- Operating humidity to 95% RH Non-condensing
- Open Charge Point Protocol (OCPP) 2.0 1 compliant with latest revision.
- Intelligent charging units to allow charging sessions to be controlled via Allstar, RFID card and mobile app access with pay-as-you-go functionality to communicate to a back-office server via OCPP compliant GPRS with functionality to allow MoJ log-in access to view usage data in real time. Data to include cost centre allocation and KWh per session vehicle.
- Data integration with public charge network is desirable.

- Charger to incorporate load management / balancing control unit to provide functionality to prioritise vehicles and determine the start and end time of charging periods in order to take advantage of cheaper night-time tariffs and allow for diversified loads.
- The MoJ fleet is to be regarded as a 'back to base' fleet. Chargers will be AC (alternating current) EV charger with smart capability (and OCPP software). Due to the diverse range of spare capacity headroom at sites a charger capable of charging up to 22kW (32A, 3-phase) but with the ability to be both 'set' at a lower output single phase charging and with a load balancing capability is the requirement. It is considered that this approach will provide a cost effective and future proofed solution, allowing the hardware to be set up initially in accordance with the current fleet requirements and site capacity restrictions but allowing for an easy increase in charging output and expansion of the charging network as and when the site capacity is increased.
- GPRS to comply with Cellular Data Network Radio Equipment Directive.
- TCP/IP 2 way communication with secure central server. With network security to HTTPS, 128 bit encryption.
- Smart Charging – Access to web based portal: set rates and charging hours, monitor charging status, consumption data and online/offline status for individual devices or groups of devices. Multiple mobile app profiles tailored to business needs allowing for: authentication, reservations, consumption monitoring and usage notifications.
- Load Balancing – load balancing technology is to be incorporated to manage single or multiple chargers within a set limit to ensure that the site capacity is not exceeded even when multiple vehicles are plugged in.
- It is important to have visibility of electric vehicle charging point status/availability which will help avoid time wasted and electric vehicle users having a negative experience when interfacing with a non-operational charging point.

2.11 Practical completion

The supplier is to be responsible for the design and installation of the infrastructure and associated equipment, including all necessary electrical engineering and construction activities.

The supplier is to incorporate load management / balancing system(s) to enable multiple charge points to be operated without exceeding the maximum power capacity of the site, to prioritise specified vehicles, and to take advantage of periods of lower tariff electricity.

Where necessary and with the prior approval of the Contracting Authority the supplier is to liaise with the Distribution Network Operator (DNO) to put in place any upgrades to the incoming main and switchgear needed to support the charging capacity that has been identified from the surveys.

The supplier will be fully responsible under the CDM Regulations for undertaking the role of Principle Designer and Principle Contractor.

Furthermore, the following will apply:

- Practical completion for the site shall be granted when the EV charge point(s) installation work is fully completed as defined in the tender documents, inspected and accepted by the Contracting Authority.
- All installation certification is provided and accepted by the Contracting Authority.

- Each location's DNO invoices have been paid in full (where applicable).
- Each installation has been demonstrated as working correctly including online monitoring, remote resetting and remote metering.
- Training to MoJ personnel on each installation location has been given, including the Contracting Authority's technical staff.
- Structural / civil calculations received & Contracting Authority's comments incorporated in the calculations.
- A full O&M manual and record drawings issued for each location of installation.

3. EV Charge Point(s) Proposals

3.1 Site Survey

As detailed elsewhere in this document the Supplier shall undertake detailed non-intrusive surveys at sites. The survey(s) shall confirm the EV charge point electrical supplies, fixing arrangements and any possible issues such as existing underground services and parking arrangements, ground conditions and disruption to services.

This proposal shall be based on information gathered during the onsite non-intrusive survey and provide full scope of works involved should the EVCP be taken to installation stage.

The proposal shall identify the electrical distribution connection points cable routes (inside and outside of the wire), internal and external to the building, identifying surfaces that shall be disturbed during installation to enable Asbestos surveys to be commissioned.

Where EV charge points are to be installed for future connection the contractor shall supply and install all necessary ducts and cable pits to facilitate this. The installations shall be in accordance with MoJ STD/E/SPEC/018 - Electrical Installations (Operating at low voltage and extra low voltage). For the purpose of tendering the contractor shall allow for the following;

- 2 in number 600 x 600mm secure lockable cable chambers. One to be formed at the EVCP position and one to be formed at the Secure Perimeter of the Establishment. Actual positions will be agreed on site.
- 3 x 100mm dia UPVC cable ducts to interconnect between pits (assume 25m for each) complete with draw wires.
- 3 x 60mm dia UPVC fibre / data ducts to interconnect between pits (assume 25m for each) each complete with draw wires.

If any adjacent building is fitted with a lightning protection system, the Supplier shall risk assess and allow to electrically bond any steelwork supports/fixings etc. associated with the EV charge point(s) installation to the termination network. Verification for SPD (Surge Protection Devices) shall be carried out and evidenced in the proposal for works.

Where the building has no lightning protection system, the Supplier shall assess and report on any remedial works he feels necessary, to reduce or mitigate the risks associated with a lightning strike, i.e., installation of SPD's to protect the electronics of the EVCP and / or additional Earthing System within the EV Charging Point areas..

The Supplier shall undertake a structural and ground survey of each site where the EVCPs are proposed, providing a written report for each site, to be included in the proposal.

3.2 EV charge point(s) Installation Design

The Supplier shall undertake, as part of the proposal, the design of the complete EV charge point(s) and associated groundwork / infrastructure associated with the site(s) the proposal shall provide the following information as a minimum for the site:

- Additional EVCPs Electrical load and verified capacity of existing Power System calculations
- The detailed design of load shedding arrangements. The EVCP's are not required to be fed by any on-site standby generators in the event of a general network power failure
  - Mains monitoring shall be applied at the ATS point of connection of the onsite generation or synchronisation point that the power supply is taken from this will signal an ATS that will isolate the power supply to the EVCP's and the EVCP's will not be re- energised until the normal mains supply has been re-energised for a period of 5 minutes to allow for network switching
  - It is not permissible for RF signalling to be used for this purpose.
- Cable installation should generally follow Sections 9, 13, 14 and other relevant parts of STD/E/SPEC/018, but in terms of going beneath the perimeter with outgoing services it would be no different to incoming services. Cable ducts are unlikely to be larger than 150mm diameter and probably only 100mm so are not an issue in themselves post-installation. The issue for an existing live prison will be around protecting the works while ongoing, and that will likely vary depending on the category of prison, location of the works (i.e. is it in a sterile/prisoner free area, etc.), and the type of perimeter.
- On the completion of surveys, where existing power systems within premises or establishments will not be deemed sufficient to supply the new EV Infrastructure, an additional provision of engineering and design for the Power Connection to DNO and relevant Feeder Pillar / Cut-out arrangement shall be provided
- All structural and groundwork calculations
- All EVCP electrical cable procurement, installation and calculations
- Detailed EV Charge point(s) layout drawings
- Full electrical schematic including all switching and protection type interfaces
- Method Statement for EVCP Protective Earthing System and connection to existing, if necessary
- Fixing details for the EV charge point(s)
- Proof of maintaining any existing guarantee or warranty on existing wall cladding / building footings, surfaces and finishing's
- Drawings indicating the proposed BWIC (excavation, back filling, plinth construction etc.) and weathering details
- Layout drawings indicating the outdoor / indoor proposed cable routes and the internal new equipment layout
- Manufacturers details of equipment
- Data sheets for all selected equipment
- Method statements and risks assessments for delivery and storage at site of materials
- Method statements and risks assessments for the EV charge point(s)
- Voltage Surge Risk Assessment and mitigating remedies
- Method statements and risk assessments for working in operational establishments and electrical shutdowns

- Method Statements for preserving the required level of Security within the worked-upon premises
- Agreement of labelling strategy and installation
- Signage as required

3.3 Planning and Permitted Development

It is anticipated that in most circumstances and locations the installations shall be delivered under Permitted Development laws and will not require full planning permission. The Suppliers shall be aware of the restrictions placed on systems to be installed under Permitted Development arrangements and comply with the requirements of each local planning authority's governance.
The Supplier shall allow, within the priced submission for liaising with the Local Planning Departments to advise them of the EV charge point(s) installations which may be installed under Permitted Development.

The Supplier shall assess the schemes during the site surveys and advise if they fall outside of permitted development laws. Where this is the case the Supplier shall make full allowances for obtaining all necessary planning approvals and shall include for preparing all necessary applications, documentation, paying all fees and attending all necessary meetings to complete the task.

GENERAL GUIDANCE

Wall mounted electrical outlet for recharging of electric vehicles – Permitted Development applies subject to the following conditions:

a) as long as the area is lawfully used for off–street parking, the electrical outlet (and its casing) must not:
b) Exceed 0.2 cubic metres
c) Face onto and be within two metres of a highway
d) Be within a site designated as a scheduled monument
e) Be within the curtilage of a listed building.
f) When the electrical outlet is no longer required as a charging point for electric vehicles, the wall (on which the outlet was mounted) must be returned to its previous condition

For the installation of an upstand with an electrical outlet mounted on it for recharging electric vehicles - Permitted Development applies subject to the following conditions:

g) as long as the area is lawfully used for off–street parking, the outlet must not:
h) Exceed 2.3 metres in height from the level of the surface used for the parking of vehicles. This limit is 1.6 metres where in the curtilage of a dwelling, house or block of flats
i) Be within two metres of a highway
j) Be within a site designated as a scheduled monument
k) Be within the curtilage of a listed building
l) Result in more than one upstand being provided for each parking space.
m) When the electrical outlet is no longer required as a charging point for electric vehicles, the land (on which the upstand was placed) must be returned to its previous condition

4. EV charge point(s) Installation - Structural / Civil Engineering Requirements

It is the Suppliers responsibility to ensure that the structural & civil engineering design and integrity of the proposal and installation is safe, sound and correct. This confirmation is relevant to the installation work and for the life cycle of the installation on the EVCPs.

The information to be provided with the initial proposals shall be relevant to each of the sites worked upon and be correct and concise. The Supplier is responsible for the correctness and suitability of all installations. All reports and references are to be communicated in plain English.

4.1 Groundwork Survey

For all civils works the Supplier shall allow to undertake a full survey of each location to be excavated for the proposed EVCPs. The Supplier shall complete the surveys including a photographic condition assessment and provide a written report on his findings enclosing the condition assessment. Asbestos surveys shall be required for each location of works.
An integral part of the pre-construction surveys will be an arboreal report where necessary. It is known that in several instances there will be a need to hand dig around tree roots so as not to cause damage.

4.2 Inspect Existing Roadways and Parking Areas

The Supplier shall assess the condition of existing highways and parking areas, describe the conditions as fully as possible, including defects, and evidence all existing services.

4.3 Assess Damage

Inspect, assess and report any areas of damage to the existing surface finishes per each location of works and adjacent areas.

4.4 General Damage

Where damage has been found at any given location, describe the element (s), including size and material of element, the place of the element (s), provide photographic evidence and the extent of the damage. Where requested, submit proposal for repair but do not attempt existing damage repairs without written instruction from the Contracting Authority.

4.5 Structural / Civils Drawings

The Supplier shall provide drawings to support the proposals which indicate the following minimum information;

4.6 Trenching

Provide drawings showing depth of trenching for cable ducts including sand, tape, tile and backfilling. Other services local to the trench shall also be identified.

4.7 Proposed Layout

Provide Plan drawings showing the proposed EVCPs layout per each location.

4.8 Break through into existing building

Provide plans and elevations showing proposed entrance into existing buildings on each location and the weather proofing details. These are to include prevention of rising ground water and damp.

4.9 Proposed layout / connection to electrical infrastructure

Provide plans and sectional drawings showing the route through the sites to connect into each existing electrical system.
Where evidenced, provide Plans and sectional drawings showing the route through the sites to connect into each to-be-installed new DNO Power Supplies, relevant Cut-out and Earthing Systems.
Care is needed in the identification of asbestos containing materials within the work area.

4.10 Structural / Civil Calculations

The Supplier shall provide structural / civils calculations to support the EVCPs installation proposals and which proves that the ground and base will support EVCPs. In addition, where penetrations are required through existing structures the contractor's Structural Engineer shall provide evidence that the proposed works do not compromise the structure in any way. Information shall be presented in plain English and all calculations shall be fully referenced and assumptions detailed and quantified.

5. Detailing Concrete Plinth Base and Trenching works

The Supplier shall provide details, drawings and sketches for the proposed base(s) for supporting the EVCPs and, where required, the new DNO Cut-out / Feeder pillar.

5.1 Standard plinth detail

The base size and type calculations shall in all cases consider the existing ground 'make up' and conditions within any structural design proposal.
Electrical cables passages and ducts shall be evidenced, and sizes shown, including radius bends and pits for cable pulling.

5.2 Typical Trench detail

The Supplier shall evidence a standard trenching detail, including ductworks, backfilling and distance from services.

The Supplier shall be detailing layouts and depths of incoming utility supplies, where applicable.

5.3 External cable routes

The Supplier shall be responsible for the correct measurement on site of the cable lengths required, and they shall be installed in one continuous length without joints.
Where cables are laid in the ground the Supplier shall ensure that trenches, pits and ducts are to the typical standard details.

5.4 Excavation Works

Care shall be taken when excavating the trenches to avoid damage to other services. Reference shall be made to any site drawings showing services to ascertain the possible locations of other services. The Supplier shall liaise with the Local Services Providers to obtain maps of their Services within the locations to be excavated prior excavations starts. Should any damage occur to existing services, the Contracting Authority shall be informed immediately. The responsibility for repairs of damaged existing services will stay with the Supplier.

5.5 Cable Laying

Allowance for changes in level and deviations required by following the building profile or site topography shall be included in the information package.
The Supplier shall be responsible for the correct measurement on site of the cable lengths required, and they shall be installed in one continuous length without any through joints.
Where cables are laid in the ground the Supplier shall ensure that trenches, pits and ducts are installed in accordance with this documentation and all relevant Standards as applicable.
Other services and cables that have been uncovered during excavation shall be adequately supported and protected. Cables buried in the ground shall be laid in properly excavated trenches. The trenches shall be evenly graded, clear of loose stones and coved with a 75mm layer of sand or sifted soil. The cables shall be carefully laid in the trench being spaced apart where there is more than one and a 75mm layer of sand or sifted soil placed over the cables before the trench is back filled. A yellow safety tape with black writing reading “CAUTION! ELECTRIC CABLE BELOW” shall be installed 200mm above the new cables for all the length of the underground cable.
Cable trenches for Low Voltage, Earthing System and Data cabling installation shall be at least 600mm (2’ – two feet) deep. If Fibre cables are used, then Polyduct of 60mm diameter minimum shall be protecting the Fibre cables. When crossing roads, car parks or vehicles passages, the cables shall be installed in heavy duty Polyducts of adequate diameter. The ends of the polyducts shall be sealed against water penetration, rodents, insects and vegetation roots.
The Electricity Safety, Quality and Continuity Regulations 2002 – Part IV – Underground Cables and Equipment – shall be fully adhered to.

5.6 Cable Identification

Buried cables shall be identified in accordance with the standards set out.

5.7 Cable Ducts

Additional cable ducts shall be installed in accordance with the standards set out and as agreed with the Contracting Authority.

5.8 Reinstating Ground Works

All trenching, reinstatement, supply of sand, ducts and installation of ducts shall be carried out by the Supplier and shall be to match existing and good standard or better upon completion.
If there is presence of water in the trenches, backfilling should not start until, and unless, the water has been taken out.
The backfilling shall be sufficiently compacted to ensure that the reinstated surface of the trenches will not collapse in future.
Surface finishing shall match, or better, the existing.

5.9 Record information

A plan drawing depicting accurately the position of all the external cable runs, ducts and trenches shall be supplied upon completion of the works for submission into the Operating & Maintenance manuals. The drawing shall also indicate the location and depth of each service discovered during excavation.

5.10 Standard Incoming services detail

The Supplier shall include sketches showing typical Incoming Supplies details.

6. Groundworks on Site

6.1 Excavation and grounds work

The Supplier shall use appropriate barriers to make safe the groundworks area. Supplier shall liaise with the appointed local building managers at all times to ensure that staff and members of the public are kept safe.

6.2 Temporary support and shoring

The Supplier shall allow, where necessary, for temporary support and shoring to excavation / trenching activity.

6.3 Safety General

Excavating in the street is dangerous work: damage to underground services can cause fatal or severe injury. The activity of excavating in the streets needs to be addressed in a safe manner – see HSE publication HSG47 *Avoiding dangers from underground services*.

The Supplier shall provide Personal Protective Equipment to all workers associated with the works. The Supplier shall carry out the works employing only suitably qualified and experienced persons. The Supplier shall ensure that each worker has been provided with the relevant safety training for the works. Full details of training and qualifications appropriate to each worker shall be provided prior to their commencing work on site.

6.4 Delivery of Materials to Site

The Supplier shall include for the safe delivery to site of all materials and equipment for the installation of the complete System.
Where necessary this shall include for crane lifts, temporary material lifts, road closures and anything else to enable the works to be carried out including any local authority charges.
The Supplier shall note that there may be no on-site storage facilities available, if equipment/materials needs to be stored, then the storage facilities shall be provided by the Supplier within his own warehouses or in agreed locations. The security of the storage facilities and the materials contained within them shall be the responsibility of the Supplier.
The storage and site compound shall be maintained in clean& tidy order throughout the container. Storage areas shall be reinstated to existing and good condition upon completion.

The Supplier shall provide within the method statement per each working location how the materials are to be delivered to site and any temporary storage facilities proposed. At all times

the Supplier shall understand, consider and respect the delivery constraints and timings for each individual site, location and Contracting Authority's requirements.

7. EV Infrastructure Electrical System requirements

7.1 AC Circuit Installation

All persons working on the cabling of an electric vehicle charge point(s) shall be experienced / competent, fully trained in working with such systems and fully acquainted with the risks that voltages present on that system. Works shall be carried out using qualified electricians complying with the electricity at work Regulations (EAW). These are to be read in conjunction with HSE guidance memorandum of guidance on EAW regulations 1989, HS R 25 and the 18th Edition of the IET Wiring Regulations.

7.2 Live Working

Working on live electrical circuits will not be permitted. If it is unavoidable to work in any enclosure or situation featuring simultaneously accessible live electrical parts, this shall be raised with the Contracting Authority.

7.3 Protection against Electric Shock

The following protective measures are not permitted for electric vehicle charging installations:

- Obstacles and placing out of reach
- Earth-free local equipotential bonding

Where and if required, it is the Suppliers responsibility to notify the DNO with one calendar month notice of the installation as detailed within the IET Code of Practice for Electric Vehicle Charging Equipment. An example of the application is contained in 3rd Edition of the IET Code of Practice for Electric Vehicle Charging Equipment.
The Earthing arrangement on each location shall be carefully evaluated and a design shall be submitted in line with the 3rd Edition of the IET Code of Practice for Electric Vehicle Charging Equipment.

7.4 Requirements for the provision of RCD's

Every charging point shall be protected by a 30mA RCD, with an operating time not exceeding that laid out in the 18th Edition of the IET Wiring Regulations. Intervention discrimination between RCDs installed at the connecting point and / or incorporated in the charging equipment with the devices installed at the source shall be provided.

7.5 Isolation

A means of isolating the electric vehicle charging point shall be provided in accordance with BS7671:2018 + A1:2020 – 18th Edition of the IET Wiring Regulations and be readily accessible and suitably labelled.

7.6 Functional switching

Additional forms of switching for functional purposes may be required e.g. to prevent unauthorised use of the EV outlets. This requirement is to be agreed with the Contracting

Authority and considerations to further the software capability to prevent unauthorised use must be made.

7.7 IP Ratings

The electric vehicle charging equipment being installed shall have IP rating suitable for the proposed installation location but not less than IP54. Connectors, glands, conduits etc. shall be appropriate in accordance with the BS 7671:2018+A1:2020 and any relevant Code of Practice.

7.8 Earth Bonding

All equipment, apparatus and metal work shall be effectively bonded to provide a continuous earth path back to the feeding distribution board / feeder pillar. This shall not absolve the Supplier from bonding other equipment, apparatus or metal work which is necessary to comply with the BS 7671:2018+A1:2020 and the IET Code of Practice for Electric Vehicle Charging Equipment.

7.9 Voltage Surge Protective Devices

The Supplier shall prepare a Risk Assessment report per each location of intervention to evaluate the associated increased risks due to the additional installation and provide the required Voltage Surge Protections as per BS EN 62305-4:2012 and BS7671:2018+A1:2020.

7.10 Impact

Electric vehicle charging equipment installations shall be protected against a minimum impact severity of AG2, as defined in BS 7671:2018+A1:2020 – IET Wiring Regulations.

7.11 Accessing the Charging Infrastructure & Paying for Charging Services

Charging units are to provide charging sessions controlled via RFID card or mobile app access with pay-as-you-go functionality. Additionally, the client is currently using a fuel card provided by Allstar. It is understood that there is potential for this card to be capable of providing payment for EV charging, this facility is also to be incorporated in the EVCP's provided. Final details will be confirmed at the earliest opportunity by the Contracting Authority.

The System shall allow all MoJ Vehicles travelling from any Regional location to any other Regional location, UK wide to be charged and monitored

7.12 Software and Back Office solutions

The Contracting Authority will tender separately for a company to operate the system for accessing the charging infrastructure, paying for charging services, managing and maintaining the infrastructure, data collection and reporting.

7.13 Data Collection

The minimum data collection requirements shall be as outlined in Appendix 4 of this document.

There is a requirement for two elements here;

- Data collection (with or without the access system) – visibility at each location and ability to collect data as per OLEV in appendix 4.

- System to control access (with or without payment) – this should be optional as the MoJ may not take this up on any of the sites at this stage. This is with the mobile phone call in service or mobile phone app. MoJ can dictate the price for staff and the price for the public in each location.

8. Commissioning and maintenance requirements

8.1 Testing

The Supplier shall, upon completion of the installation and prior to hand over the works, inspect the installation to verify that the installation fully complies with the BS 7671:2018+A1:2020 and the EV charging equipment manufacturer's instructions.

On completion, an Electrical Installation Certificate, together with schedules of inspection and schedules of test, shall be issued to the Contracting Authority.

All EVCP status messages shall be clearly displayed on the EVCP screen and communicated to the EVCP Contracting Authority monitoring console to show when the charge point unit is available, faulty, active or inactive.

8.2 Maintenance and Service

To ensure any failures of charging points are minimised and the "down time" (which potentially reduces operational efficiency and hence viability) is minimised, effective support is to be provided by the Supplier to respond to failures and reinstate the charging points "in service" at the earliest opportunity.

The contractor is to ensure that spare parts and equipment is obtainable for at least 15 years from the date of handover.

During the Defects & Liability period of 12 months from handover, in the vent that the client reports any defects that arise to the contractor the contractor to make them good within a reasonable time.

NB: It is actually the contractor's responsibility to identify and rectify defects, not the client's, so if the client does bring defects to the contractor's notice, they should make clear that this is not a comprehensive list of all defects

At the end of the defects liability period, the contract administrator will prepare a schedule of defects, listing those defects that have not yet been rectified, and agrees with the contractor the date by which they will be rectified. The contractor must in any event rectify them within a reasonable time.

When the contract administrator considers all the items on the schedule of defects have been rectified, they issue a certificate of making good defects. This has the effect of releasing the remainder of any retention and results in the final certificate being issued.

The minimum requirements which the successful Supplier must be able to provide are as follows:

- Supplier is to provide a 24/7 reactive repairs service with attendance within 24 hours.
- Supplier shall confirm their current KPIs compliance within the 24 hour response time.

The Supplier shall provide contact details of the personnel responsible for each EVCP location to enable fault reporting by telephone, email, text, and website or mobile phone app. The helpline telephone number shall be prominent and clearly displayed and be free of charge to users.

The Supplier will provide copies of all maintenance records for all Contracting Authorities, and to the tender manager upon request.

During the Defects Liability period the manufacturers testing of charging points will include the following Inspection and activity as a minimum:

1. the EVCP enclosure
2. electrical components & equipment including connections
3. wiring integrity and circuit protective devices
4. earthing integrity & devices
5. the mounting and physical structural integrity of standalone charging points
6. mounting and location of charging points on other structures
7. weathering, gaskets, seals, rainwater damage/ingress
8. ventilation for cooling including filters
9. software programmes
10. connection sockets, plugs and cables
11. communication integrity to Supplier data system, signal strength and data access
12. visual and photographic survey of signage and parking bay markings
13. general condition of installation

9. Distribution Network Operator (DNO)

Within any installation location, where existing Building Power Supply is deemed by the Supplier not sufficiently strong to provide power to the EVCPs to be there installed, then it will be the Supplier duty to contact the local DNO for providing dedicated power to the EVCP System of interest.

9.1 Maximum Demand exceeded

The Supplier shall asses / verify the Property Electrical Maximum Demand (MD) Load. When this is assessed, the Supplier shall add the EVCP loads to it, duly split between Phases, and add to the existing Property Maximum Demand Load the EVCP equipment loads to be installed. Diversity of these EVCP Loads shall be deemed at 1 (full load) unless a shedding system is provided to allow for priority EVCP charging points. If the MD Load including the EVCPs exceed the 80% of the DNO Power Supply to the Premises, the Supplier shall evaluate the necessity to apply to the relevant DNO directly for an additional Power Supply to be used exclusively for the EVCP System prior to installation using the relevant DNO application form. The DNO will undertake an assessment of the impact the connections may have on the network and then specify conditions and costs for connection.

The new connection to the DNO will be specifically to power supply the EVCP requiring additional Power and shall be kept separated from the Building Power Supply connection to avoid interferences with the existing Electrical Systems.

9.2 Maximum Demand within existing Supply limits

If the Supplier evaluation report assesses that the properties Electrical Maximum Demand (MD) Load PLUS the EVCP Maximum Demand Loads are within the 80% limits of the existing DNO Power Supply to the premises, the Supplier shall submit to the Contracting Authority all supporting documentations demonstrating that the existing Building Power Distribution System is sufficiently sized to provide for the EVCPs to be installed, and shall provide design for the required Electrical Distribution System modifications and Protection Coordination to allow for the Power Supply to the newly installed EVCPs to be taken from the existing Power Supply of the premises.

10. Labelling & Signage

10.1 EVCP Labelling

The Supplier shall fully label the installation in accordance with the requirements of all elements of this specification, and IET Code of practice for Electric Vehicle Charging Equipment Installation. All labels shall be clear, easily visible, constructed and affixed to last and remain legible for the lifetime of the system.

Signage and labelling shall be provided by the Supplier and agreed with the Contracting Authority. The specification and tender guidance document provide the basis for a simple effective standard signage format and is to be adopted at all locations to ensure a cost effective easily identifiable solution is provided by the Supplier. The requirement is to ensure consistent sign posting to parking spaces with Charging Points and identify spaces individually where EV charging are to be carried out. A variety of EVCP symbols exists without a formal standard, however, as a suggestion, Transport for London have standards containing a list of symbols which shall be proposed by the Supplier to the Contracting Authority in the first instance and, if approved, shall be adopted for the whole Project.

11. Operation & Maintenance Information (O&M)

The Supplier shall provide an Operating and Maintenance Manual for each location installation. The Supplier shall provide one copy of a basic, typical manual for comment to the Contracting Authority, and once approved the Supplier shall provide per each side one hard copy, and two electronic combined PDF & Word versions with electronic copies of all drawings in DWG format related to each EVCP Location.

The Supplier shall provide a simple and concise step by step guide on the EVCP, user interface and operation, shutdown procedure, interfaces and alarms. This guide shall be included within the front of each site Manual. The Supplier shall ensure the following information as a minimum are included within each of the O&M Manuals:

- A single line electrical schematic indicating all the system components
- Layout and sectional drawings

- A system overviews
- A copy of the basic system information
- A copy of the equipment literature and data sheets for all the system components
- Other relevant product documentation including Civils works, Cable routes, Structural calculations, Protection coordination and discrimination, etc.
- A copy of all electrical the test & commissioning documentation. GSM signal validation communication to web portal validation certificate
- Procedures for verifying correct system operation and fault finding
- A checklist of what to do in case of a system failure
- Shutdown / isolation and start-up procedures
- Software configuration set up and programming
- Identification, Location & Unique identification number of equipment
- Maintenance & cleaning recommendations
- Considerations for any future building works adjacent to the EVCP station(s)
- Structural and civil details including calculations.

12. Additional Information

All forms contained in the Appendices of this document shall be used by the Supplier for the purpose they are designed and as described below. The completed forms shall be included in the O&M manual as appropriate, accompanying the testing and commissioning sheets.

12.1 Call-out protocol

The call-out protocol shall be completed prior to practical completion and submitted to the Contracting Authority at the same time as submitting the draft O&M manuals.

12.2 Witnessing schedules

All systems installed at various locations shall be witness tested and commissioned by the Contracting Authority in accordance with this Specification. The Supplier shall provide a fully completed witness schedule prior to handover recording that all the systems have been witnessed to confirm that they are fully operational and accepted. The minimum witness schedule for each site shall detail the following minimum requirements:

- Electrical dead testing
- Electrical live testing
- Remote metering operation
- Access to the Web Portal to show the site-specific parameters
- Witness record sheet – Common data
- Record of Certification & Demonstration to Contracting Authority and / or End User
- Plant or System changed or newly installed

Any system, plant and/or appliance which is not signed-off confirming that the appropriate testing, commissioning and demonstration activities have been fully witnessed, shall prevent practical completion being agreed.

12.3 Plant or system changed or newly installed

Appendix 3 – Plant change form. The plant change form is relevant for all new buildings or sites to be maintained or existing buildings currently being maintained by the Contracting Authority. The Supplier shall complete the form prior to practical completion of each installation and submit this to the Contracting Authority at the same time as submitting the draft operation & maintenance manuals. The plant change form shall be accompanied by a copy of the testing and commissioning certificates held in the O&M Manual.

13. Appendix 1 - Witness record sheet - Common data

Project Name		Building / Establishment:	
File Code:		Issue Date:	
Project Engineer:		Rev:	

All systems to be tested and commissioned shall be witnessed in accordance with the specification and the witness schedules shall be complete prior to handover recording that all the systems have been witnessed to confirm they are fully operational and accepted.

Any system, plant and/or appliance which is not signed-off confirming that the appropriate testing and commissioning activities have been fully witnessed, shall prevent the certificate of practical completion from being issued.

1.1 Witness Record Sheet – Electrical Services Details						
System/ Activity	Date offered	Min % to be witnessed	Witness		Certificate	Comment
			Date	By	Y-N-na	
1.2 Mains Failure:						
Shut down		100%				
Restart Charging after 30 seconds		100%				
1.3 Generator Back up:						
Shut down EV supply		100%				
1.4 Web protal:						
Charge point visibility		100%				
Meter visibility		100%				
1.5 Other Elements						
DNO acceptance		100%				

		Signature	Print Name
Date	Supplier		
	Contracting Authority		

14. Appendix 2 – Record of Certification & Demonstrations to Contracting Authority and/or end user

The tested and commissioned systems shall be demonstrated to the end-user/Contracting Authority and this shall be certified as being carried satisfactorily and signed-off by the CA.			
Certification and records documentation supplied: Sheet 1 of 3			
Item	Comment – Demonstration includes approved system testing and certification in place	Action	Date Req'd by
1.1 Electrical certificates		A	
1.2 Data certificate		A	
1.4 Warranty documentation		A	
1.6 Data collection Information		A	
1.7 SMS Information		A	
1.8 Metering Information		A	
1.9 Servicing during warranty		A	
1.10 Call out protocol		A	
1.11 Record Drawings and O&M manuals		A	
1.12 Other		A	
A = Action Accepted/Complete B = Accepted subject to comments C = Unacceptable. Action Required na = Not applicable			

		Signature	Print Name
Date	Supplier		
	Contracting Authority		

Demonstrations of systems and plant **Sheet 2 of 3**			
Item	Comment	Action	Date Req'd by
2.2 Metering Operation		C	
2.3 Data Collection Operation		C	
2.4 Web Viewing		C	
2.5 Electrical Testing		C	
2.6 Earthing & Bonding		C	
2.7 Lightning Protection		C	
2.8 O & M Information		C	
2.9 Training		C	
2.10 Spares		C	
2.11 Other		C	
A = Action Accepted/Complete B = Accepted subject to comments C = Unacceptable. Action Required na = Not applicable			

15. Appendix 3 – Plant or System changed or new installed

Property Address:		Electrical Services Installation Supplier:	
Property Number:		Maintenance Supplier:	
Practical Completion date:		End of Defects date:	
Project Engineer		TMS Code	
This is relevant for all new buildings to be maintained or existing buildings currently being maintained by The Contracting Authority. The Contracting Authority shall complete the form prior to practical completion and submit this to the CA at the same time as submitting the draft operation & maintenance manuals.			

SUMMARY OF NEW PLANT/SYSTEMS INSTALLED			
Description	Location	Reference	Comment

NEW PLANT/SYSTEM DETAILS					
1.1.1 PLANT/SYS	Qty	Fitted (Y?N)	Monitoring Co. Name	Maintenance Contract (Y/N)	Maintenance Contract Expiry (date)
EV charging point					
Is written scheme prepared?				Yes No	
Has plant, including any lifts, been added to Insurance schedule?				Yes No	

1.1.2 COMMENTS			
Date:		*Completed by:*	

16. Appendix 4 – Minimum technical specification – Workplace Charging Scheme (WCS) - March 2020

Where there is a discrepancy between this document and the minimum technical specification for the WCS the WCS will take precedence. The contractor is to bring such discrepancies to the attention of the CA.

Minimum technical specification – Workplace Charging Scheme (WCS) - March 2020

Office for Low Emission Vehicles

1. This minimum technical specification is for the WCS only. Manufacturers who wish to apply for authorisation for chargepoints under this scheme must ensure units comply with the below technical specifications.
2. Manufacturers who wish to apply for authorisation under both the EVHS and the WCS must ensure chargepoint units comply with technical specifications for both schemes. EVHS technical specifications can be found on the OLEV infrastructure grant scheme web page: https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles
3. Where documents are mentioned in the technical specification, the current edition of each applicable document at the time of the installation is the one with which compliance is required.
4. In cases where updates of documents lead to apparent inconsistency, the IET Wiring Regulations (BS 7671:2018) take precedence for electrical installation requirements.
5. The minimum technical requirements of the chargepoint and its installation are as follows:

1.0	**GENERAL**
	This document defines the specification for electric and plug-in hybrid electric road vehicle conductive charging equipment.
	References to standards or regulations are to the current edition of such standards or regulations at the time of the installation.
	In cases of apparent inconsistency in installation requirements, the IET Wiring Regulations (BS 7671:2018) shall take precedence.
	Manufacturers/suppliers of the proposed charging equipment shall demonstrate compliance with this specification.
2.0	**INSTALLATION**
	This specification is for the charging equipment only and not the final installation. However, it is required that the final installation will be in accordance with the IET Wiring Regulations BS 7671:2018; the recommendations of the IET Code of Practice for Electric Vehicle

	Charging Equipment Installations (as amended); Electricity Safety, Quality and Continuity Regulations and all other applicable standards.
	Installations on the public highway shall use a contractor registered through the Highways and Electrical Registration Scheme (HERS). Please note that from 3 February 2020 the latest version of BS 7671 will be BS 7671:2018+A1:2020. Installations commenced after 31st July 2020, to which this is relevant, are to comply with BS 7671:2018 incorporating Amendment 1:2020.
	Charging Equipment shall be installed in accordance with BS EN 61851-1:2019
	The electrical supply of the final installation should allow the charging equipment to operate at full rated capacity. Where local supply constraints prevent operation at full rated capacity, the charging equipment shall be classified according to actual output capacity.
	The design of the charging equipment shall permit compliance with the requirements of BS 8300:2009+A1:2010.
3.0	**CHARGING EQUIPMENT - COMMON REQUIREMENTS**
	Charging equipment shall be CE marked in accordance with EC Directive 768/2008/EC.
	Details of any precautions necessary to ensure safe operation with Active Implantable Medical Devices shall be provided and must also be clearly displayed on the charging equipment.
	Charging equipment shall be compliant with:
	. BS EN 61851-1:2019
	. Electromagnetic Compatibility Regulations 2016 (The 2006 Regulations continue to apply to equipment placed on the market before 8 December 2016).
	. Electrical Equipment Safety Regulations 2016 (The 1994 Regulations continue to apply to electrical equipment placed on the market before 8 December 2016).
	BS EN 62196 Mode 1 or Mode 2 charging shall not be compliant with this specification.
	Charging equipment shall utilise charging station EV socket outlets (BS EN 61851-1:2019 Case A, or B connection) or charging stations with tethered cables (BS EN 61851-1:2019 Case C connection).
	Where multiple outlets are provided the charging equipment shall be classified according to the output power delivered at each outlet with all outlets operating simultaneously.
	Where multiple connectors are associated with a single outlet only one connector shall be active, and all other connectors shall be inactive, when the outlet is in use.
	For AC charging equipment:
	. AC charging equipment output power shall be measured or calculated at a nominal supply voltage of 230Vac single-phase or 400Vac three-phase.

	. AC charging equipment shall be compliant with BS EN 61851-1:2019 (Please note that all requirements from IEC 61851-22 have been moved to this standard as work on IEC 61851-22 has ceased).
	. AC charging equipment shall use BS EN 62196 Mode 3 charging.
	. AC charging equipment socket outlets (where used) shall be BS EN 62196 Type 2.
	For DC charging equipment:
	. DC charging equipment shall be compliant with BS EN 61851-23:2014
	. DC charging equipment shall use BS EN 62196 Mode 4 charging
	For charging equipment with embedded generation capability (V2X):
	. Charging equipment with embedded generation capability of up to and including 16A per phase shall be compliant with ENA Engineering Recommendation G98.
	. Charging equipment with embedded generation capability greater than 16A per phase shall be compliant with ENA Engineering Recommendation G99.
3.1	CHARGING OUTLETS
	The following outlet configurations are permitted:
3.1.1	SLOW AC (less than 3.5kW)
	Not permitted
3.1.2	STANDARD AC (3.5kW to 7kW)
	Charging equipment outlet shall be rated 230Vac ± 10% single-phase.
	Charging equipment output shall be greater than 3.5kW and not greater than 7kW.
3.1.3	FAST AC (7kW to 23kW)
	Charging equipment outlet shall be rated 230Vac ± 10% single-phase or 400Vac ± 10% three-phase.
	Charging equipment output shall be greater than 7kW and not greater than 23kW.
3.1.4	SEMI-RAPID AC (23kW to 43kW)
	Charging equipment outlet shall be rated 400Vac ± 10% three-phase.
	Charging equipment output shall be greater than 23kW and not greater than 43kW.
	Charging equipment shall be fitted with a BS EN 62196 Type 2 socket outlet or tethered lead fitted with a BS EN 62196 Type 2 connector.
3.1.5	RAPID AC (43kW to 44kW)
	Charging equipment outlet shall be rated 400Vac ± 10% three-phase.
	Charging equipment output shall be greater than 43kW and not greater than 44kW.
	Charging equipment shall be fitted with a BS EN 62196 Type 2 socket outlet or tethered lead fitted with a BS EN 62196 Type 2 connector.
3.1.6	FAST DC (3.5kW to 22kW)
	Charging equipment output shall be greater than 3.5kW and not greater than 22kW.
3.1.7	SEMI-RAPID DC (22kW to 50kW)
	Charging equipment output shall be greater than 22kW and not greater than 50kW.

3.1.8	RAPID DC (50kW to 62.5kW)
	Charging equipment output shall be greater than 50kW and not greater than 62.5kW.
4.0	**LOCATION - GENERAL**
	Equipment installed shall meet the applicable minimum IP ratings set out in BS EN 61851-1:2019 and BS 7671:2018 according to the usage location.
4.1	LOCATION - WORKPLACE
	The final installation shall be in accordance with the current edition of the Electricity at Work Regulations.
5.0	**USER INTERFACE - GENERAL**
	Charging equipment status shall be indicated using lights, LEDs or display.
5.1	USER INTERFACE - WORKPLACE
	Charging equipment shall display instructions for payment/access (as appropriate) and equipment operation. Details of approach shall be provided.
6.0	**DATA REQUIREMENTS**
6.1	DATA REQUIREMENTS - WORKPLACE
	Data communications to allow remote data collection shall be provided.
	A data acquisition system compatible with OLEV Chargepoint Usage Data Requirements (refer to factsheet in Appendix 1) shall be provided.
	Each outlet shall provide measurement of energy supplied, to be output to both display (where fitted) and data acquisition system compatible with OLEV Chargepoint Usage Data Requirements (refer to factsheet in Appendix 1). Where a MID approved meter is not used details of metering and accuracy shall be provided.
7.0	**SERVICING & MAINTENANCE**
	Charging equipment shall be supplied with an on-site three-year warranty on parts and installation.
	The charging point shall have a minimum operational life of 3 years to satisfy the requirements of the OLEV grant scheme.

Appendix 1 - Data requirements

This Annex sets out the Office for Low Emission Vehicles' (OLEV's) chargepoint usage data requirements.

1.1 Data fields and definitions

Grant recipients are required to make appropriate arrangements with chargepoint operators to collect and submit data on each charging event under each of the following data headings:

- Chargepoint ID
- Plug in date and time
- Unplug date and time
- Charge start date and time
- Charge end date and time
- Total energy drawn (kWh)

1.2 The definition of each data field can be found in Table A

It is expected all data points will be recorded at > 95% accuracy. Note that OLEV will accept data supplied from units which record energy consumption at intervals of up to a maximum of 30 minutes.

1.3 Data should be reported to OLEV in an Excel file in the exact format set out in Annex 1

Process of providing data to OLEV

1.4 The grant requires that the data set is provided quarterly, directly to OLEV by email to chargepoint.grants@olev.gov.uk.

1.5 In order to support OLEV log and amalgamate the data efficiently:

1.5.1 The subject header for emailed submissions must be in the following format: *"YYMMDD – On-Street CP usage data - Chargepoint operator name"*

1.5.2 The excel file containing the data should be submitted using the following format: *"YYMMDD – On-Street CP usage data – Chargepoint operator name"*

1.6 Submission should be provided as follows:

- 1st April – data submitted for January-March
- 1st July – data submitted for April-June
- 1st October – data submitted for July-September
- 1st January - data submitted for October-December

1.7 Data should be provided to OLEV for 3 years, starting on the date the chargepoint became operational.

1.8 In order for the usage data to be utilised, it is important that OLEV receives data in full on the relevant due dates. If the data is incomplete, OLEV is unable to identify trends, develop insights and evaluate policy. Therefore, OLEV expects chargepoint operators to arrange for the data to be submitted in the required format automatically, without requiring a person to access and draw down the data. This is to ensure that the data is reliably received without prompting.

1.9 Should data be incomplete, or fail to be submitted as per the schedule above, OLEV reserves the right to require repayment of grant funding from the grant recipient.

Data field definitions

Table A	
Data field	Description
Identifier for chargepoint	Unique identifier for chargepoint. This should match the chargepoint ID used on all forms and claim forms, and be consistent for the life of the chargepoint.
Plug in date and time (dd/mm/yyyy) (00:00h)	The date and time that the vehicle was plugged in, in 24-hour clock format and using the UK (not US) date format, expressed to the nearest minute possible. OLEV will accept data supplied from units which record connection/disconnection at intervals of up to a maximum of 30minutes.
Unplug date and time (dd/mm/yyyy) (00:00h)	The date and time that the vehicle was unplugged, in 24-hour clock format and using the UK (not US) date format, expressed to the nearest minute possible. OLEV will accept data supplied from units which record

	connection/disconnection at intervals of up to a maximum of 30minutes.
Charge start (dd/mm/yyyy) (00:00h)	The date and time that the vehicle began to draw charge in 24-hour clock format and using the UK (not US) date format, expressed to the nearest minute possible. OLEV will accept data supplied from units which record energy transfer at intervals of up to a maximum of 30minutes.
Charge end (dd/mm/yyyy) (00:00h)	The date and time that the vehicle stopped drawing charge in 24-hour clock format and using the UK (not US) date format, expressed to the nearest minute possible. OLEV will accept data supplied from units which record energy transfer at intervals of up to a maximum of 30minutes.
Total energy drawn (0.00kWh)	The electrical energy transferred during the charging event, in kWh, rounded to two decimal places and with energy transferred from the charging point to the vehicle being positive and energy transferred from the vehicle to the charging point being negative. If this is not directly measurable and you wish to infer this from other parameters please contact OLEV to discuss exactly how you propose to estimate the energy transferred.

Annex 1

Charging event	Chargepoint ID	10 Plug in Date	Plug in 11 ime	Unplug 12 Date	13 Unplug Time	14 Charge start Date	15 Charge start Time	16 Charge end Date	17 Charge end Time	Total kWh
20	WMP11418	03/03/2016	15:54	03/03/2016	20:05	03/03/2016	15:54	03/03/2016	16:46	2.83
21	...	...	...					...	...	...
22	...	...	...					...	...	...